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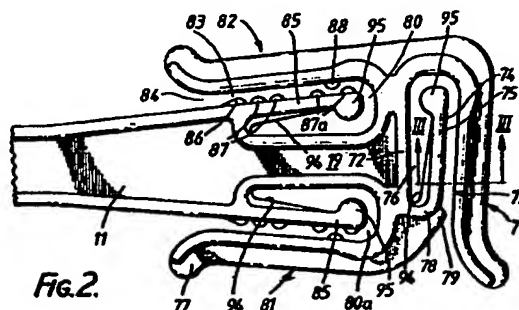
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(54) **Garment hanger.**

(57) A hanger (10) specifically designed for holding and suspending lightweight clothing, particularly of delicate fabrics, has a rigid, elongated body (11) terminating at each end in a set of arms (71,81,82), one on top, one on the bottom and one at the end of the body forming article receiving slots (75,83). Each of the slots leads into a pocket bounded by a tongue (74,85). Each tongue has a reinforcing rib (94) which extends from a maximum height adjacent its nexus with the body to zero height adjacent the distal end to allow a small initial deflection under light load with further deflection under increasing load. Deflection is limited by stops (95) at the distal ends of the tongues.



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Garment Hanger

This invention relates to garment hangers and particularly, but not exclusively relates to lightweight, one-piece hangers particularly designed for either display or home use with lightweight delicate garments such as items of intimate apparel.

For the purpose of effectively displaying lightweight garments of delicate fabrics, such as underwear and the like, there is a need for a hanger which will effectively and reliably hold the garment for the purpose of display without damage to the delicate fabrics involved. The hanger must also be capable of effectively gripping various types of garments. It is equally desirable to provide such a hanger which can be repeatedly used with the garments by the user without damage or wear on the garment itself. This is particularly true in connection with laundering the garments. Because of the nature of the garments with which these types of hangers are used, it is important that the hangers themselves be lightweight, easy to use and capable of gripping the garment without the use of means which would cut or injure any of the threads of the garment. It is also important that the hanger be inexpensive because, in the case of many retail facilities, the hangers either have a single use or, in some cases, are delivered to the customer with the hanger. From the viewpoint of the customer, particularly one who travels, it is important that the hanger be lightweight, capable of being tightly packed in luggage and transportable with a minimum of required space.

The garment hangers described here provide improvements over the hangers described in US-A-4623079 and 4629102. The garment hangers can be used to suspend a variety of garments, such as underwear, brassieres, slips or pantyhose, these being only exemplary of the broad spectrum of use of the invention.

US-A-4623079 describes a garment hanger having an elongate body, support means extending upwardly therefrom and, at each end of the body, one of a complementary pair of garment gripping constructions, each gripping construction comprising a cantilevered arm forming with the body a pocket having a garment receiving opening at one end and a cantilevered tongue extending from a proximal end adjacent the opening along the pocket to a distal end spaced from the closed end of the pocket. It has been found that on occasions when such hangers - which are intended specifically for lightweight items of delicate fabrics are used for sturdier garments such as those having bulky waistbands the cantilevered tongue can be overstressed leading to fracture. What may be

worse is that undetected cracking rather than fracture may occur at the nexus between the proximal end of the tongue and the body and the damaged hanger may be reused. Then, when an attempt is made to remove the garment snagging occurs at the cracking causing damage to the delicate fabric of the garment. After extensive effort, these problems have now been overcome by the present invention according to which the tongue has a reinforcement rib integral with the side thereof away from the arm, the rib extending a major portion of the length of the finger from the proximal end thereof for stiffening the finger against deflection.

It has been found that the invention is particularly effective if the height of the reinforcement rib tapers from a maximum at the proximal end to a minimum adjacent the distal end of the tongue. Preferably, the height of the reinforcement rib tapers to zero at a point adjacent to but spaced from the distal end of the tongue. With this construction, the deflection characteristics of the tongue is a progressively increasing one, an initial light load as is required for a very sheer material producing a sufficient deflection to admit the material, the tongue thereafter exerting an adequate but light retaining grip. For heavier materials, a progressively increasing deflection will require a more than proportional increase in load so that a strong grip can be obtained for heavier garments.

If an excessive deflection is produced, fracture or cracking at the base of the tongue can result, even with the reinforcement rib. To prevent this occurring, the tongue preferably carries adjacent its distal end a stop facing away from the arm and engageable with the body to limit deflection of the tongue. Once the stop has engaged the body to prevent further deflection of the tongue, additional opening of the garment-receiving slot can still be achieved if necessary by outward deflection of the arm. It may be that in some cases provision of the stop alone may provide the answer to the problems of the fracture or cracking of the tongue without the need for the reinforcement rib and the invention therefore extends, according to a second aspect, to such an arrangement but it is preferred to provide both the reinforcing rib and the stop.

The invention may be carried into practice in various ways but one garment hanger embodying the invention will now be described by way of example with reference to the accompanying drawings, in which:

Fig. 1 is a front elevation view of the hanger;

Fig. 2 is an enlarged, fragmentary, front view of one end of the hanger; and

Fig. 3 is a cross-section taken along the plane III-III of Fig. 2.

The numeral 10 refers to a hanger having an elongated body 11 and an upstanding hook 12. The hook is centred midway between the ends of the body 11 and preferably is integral with the body. Preferably, the body and the hook and all structure which is integral with both is moulded of a suitable plastic as a single, integral unit. Suitable plastics for this purpose include polyethylene and polypropylene. To obtain maximum strength with minimum material, the body 11 is shaped as an I-beam with upper and lower flanges connected by a vertical web. The hook 12 is provided with a panel 17 for attachment of a size indicator.

The opposite ends of the body 11 are identical and each is designed to provide multiple means for engaging and supporting garments. Since the ends are identical only one is shown in the drawings and the description of one end will be considered to apply equally to the opposite end of the body. Referring now specifically to Fig. 2, it will be seen that the body terminates in an end portion 18 from the top of which an arm 71 extends outwardly and downwardly to an outwardly curved end portion. The arm 71 is spaced outwardly from the end wall 72 of the body to form a generally vertical slot-like pocket 73, open at the bottom and closed at the top. The lower end of the arm 71 is curved outwardly to provide a guide when garments are being mounted on the hanger. The lower edge of the body extends partially across the lower end of the pocket 73 providing a nexus 78 which supports an upwardly extending tongue 74, the upper end of which is adjacent to but detached from the closed end of the pocket 73. The tongue 74 divides the pocket into a relatively narrow garment receiving channel 75 between the tongue 74 and the arm 71 and a wider chamber 76 between the arm 71 and the end wall 72 of the hanger body. The chamber 76 provides a space into which the tongue can be deflected by a garment inserted into the channel 75. The tongue 74 is as wide as the flange which extends around the pocket 73. Deflection of the tongue 74 towards the end wall 72 is limited by an enlargement or stop 95 at the distal end of the tongue 74. Also the tongue 74 is reinforced by a central rib 94 which extends from the base of the finger or its nexus 78 with the body a major portion of the finger length, tapering from a maximum height near the nexus to zero near the stop 95.

Horizontally extending garment clamps are provided on both the top and the bottom of the hanger adjacent the pocket 73. These clamps are substantially identical except for the fact that the lower pocket 80a is inverted with respect to the upper pocket 80. The upper pocket 80 is formed by an arm 82 which extends inwardly along the top of the

hanger body forming an article receiving slot 83 between it and the top of the hanger body. Access to the slot is through the opening 84 between the hanger body and the curved end of the arm 82. The lower pocket is formed by an arm 81.

Each pocket is divided by a tongue 85 which extends in cantilever fashion almost the entire length of the pocket. The outer end of the tongue 85 is spaced from the end wall of the pocket and above the bottom of the pocket whereby the tongue has space to deflect under pressure from a garment inserted in the slot 83. However, as with the tongue 74, deflection of the tongue 85 is limited by an enlargement or stop 95 at its distal end. Also the tongue 85 is stiffened or reinforced by a central rib 94 which extends from the base of the tongue a major portion of its length and tapers from a maximum height near the nexus to zero near the stop 95.

Within the slot, the top of the tongue 85 forming the bottom of the slot 83 has a plurality of upwardly extending protrusions arranged in two groups. The first protrusion 88 adjacent the entrance to the slot may be wedge shaped having an elongated, inclined surface facing the entrance to the slot to facilitate the introduction of garments into the slot. Four additional protrusions 87 and 87a, arranged in pairs, are provided. The protrusions 87a are spaced further apart than the protrusions 87 creating a gap above which a protrusion 88 extending downwardly from arm 82 is provided to form an article grip. The slot formed by the lower arm 81 has the same pattern of protrusions.

The fact that the arms 71, 81 and 82 are all T-shaped in cross-section is important. This construction not only provides the arms with the degree of resistance to deflection necessary to effectively grip and hold the garments but it also strengthens the joinder of the arms to the hanger body to avoid breakage. Also, the vertical member 77 of the arm 81 which forms the lower horizontal clamp extends under the nexus 78 supporting the tongue 74 and provides a strength and support for the base of the arm where it is joined to the end of the hanger body. Also, the laterally outer end of this flange extends into the entrance of the channel 75 providing a smoothly rounded projection 79 serving as a positive restriction. This serves the dual purpose of assuring the application of positive clamping pressure against the garment to hold it in the channel 75 and provide a ledge to seat under any hem or similar band at the top of the garment to further support it. Also, by so extending around the nexus supporting the finger, it further stiffens and strengthens it.

The reinforcing ribs 94 ensure that the tongue 74 and the tongues 85 can deflect progressively. For delicate garments of sheer material the tips

only need be deflected and this can be effected without much force being required, the deflected tongue exerting only a slight compression load on the garment sufficient to grip it gently but securely. To accommodate a more bulky component such as a substantial waist band, further deflection and greater gripping power is required and this can be provided since progressively increased deflection brings the reinforcing rib 94 more and more into play. Thus the relationship between deflection load and deflection is not a linear one, a steady increase in load producing progressively less additional deflection. However, a very large deflection could lead to cracking at the base of the finger or tongue or complete fracture. Such deflection is prevented by the enlargement or stop 95 engaging the inner side of the respective pocket.

If such deflection is still insufficient to accommodate the part of the garment concerned, further opening of the passage can be achieved by outward deflection of the arms 71, 81, 82.

Claims

1. A garment hanger (10) having an elongate body (11), support means (12) extending upwardly therefrom and, at each end of the body, one of a complementary pair of garment gripping constructions, each gripping construction comprising a cantilevered arm (71,81,82) forming with the body a pocket (73,80a,80b) having a garment receiving opening (84) at one end and a cantilevered tongue (74,85) extending from a proximal end adjacent the opening along the pocket to a distal end spaced from the closed end of the pocket, characterised in that the tongue (74,85) has a reinforcement rib (94) integral with the side thereof away from the arm (71,81,82), the rib extending a major portion of the length of the finger from the proximal end thereof for stiffening the finger against deflection.

2. A garment hanger according to claim 1 in which the height of the reinforcement rib (94) tapers from a maximum at the proximal end to a minimum adjacent the distal end of the tongue.

3. A garment hanger according to claim 2 in which the height of the reinforcement rib (94) tapers to zero at a point adjacent to but spaced from the distal end of the tongue.

4. A garment hanger according to any of claims 1 to 3 in which the tongue (94) carries adjacent its distal end a stop (95) facing away from the arm and engageable with the body to limit deflection of the tongue.

5. A garment hanger according to any of claims 1 to 4 which includes two further pairs of garment gripping constructions substantially identical to the first, the first pair being located at the

outer ends of the body with the respective arms and tongues substantially vertical and the second and third pairs being located respectively on top of and beneath the body with the respective arms and tongues substantially horizontal.

6. A garment hanger having an elongated body and support means extending upwardly therefrom, the opposite ends of said body being identical and each comprising: a downwardly extending arm at the body's outer end, said arm being spaced from the end wall of said body, said arm forming a vertically extending pocket between the arm and the body; a finger spaced from both said end wall and said arm extending upwardly within said pocket and dividing said pocket into a garment receiving channel open at its lower end and an elongated deflection chamber adjacent said end wall, said chamber being closed at its lower end, the upper end of said finger being spaced from both walls of the pocket and the upper end of the pocket whereby said finger can be deflected into said chamber by a garment inserted into said channel, means at the entrance to said channel extending partially across said entrance and restricting the width thereof for positively gripping an article inserted in said channel, characterised in that the finger (74,85) has a reinforcement rib (94) integral with the side thereof facing said chamber, said rib extending a major portion of the length of the finger from the lower end thereof for stiffening said finger against deflection, said finger as reinforced by said rib being resiliently resistant to deflection to firmly press against an article inserted into said channel.

7. A garment hanger according to claim 6 in which the rib (94) is tapered lengthwise with its greatest dimension adjacent the juncture of the finger with the hanger body.

8. A garment hanger according to claim 6 or claim 7 in which the finger has a stop element (95) on its free end extending into said chamber for limiting deflection of the tongue by a garment inserted in the garment receiving channel.

9. A garment hanger as described in claim 8 wherein said pocket at its entrance has a flange (79) extending outwardly into the entrance to said pocket to partially close the open end of said pocket for gripping articles inserted in said pocket.

10. A garment hanger having an elongated body and support means extending upwardly therefrom, the opposite ends of said body being identical and each comprising: a downwardly extending arm at the body's outer end, said arm being spaced from the end wall of said body, said arm forming a vertically extending blind end pocket between the arm and the body blind at its upper end, said pocket opening at its lower end; upper and lower horizontal arms each forming a blind pocket opening toward the centre of the hanger; all

of said pockets having a finger therein the free end of which is adjacent the blind end of the pocket; each of said fingers being integral the hanger body at its end opposite from its free end and each finger dividing the pocket in which it is located in a garment receiving channel adjacent the arm and a deflection chamber adjacent the face of the finger opposite from the arm; means at the entrance to each of the channels extending partially across said entrance to restrict the width thereof for positively gripping an article inserted in the channel; characterised in that each of said fingers (74;85) has a stop element (95) on its free end extending into said deflection chamber for limiting deflection of said finger.

11. A garment hanger according to claim 10 in which the rib means (94) is tapered with its greatest thickness adjacent the juncture of the finger with the hanger body.

12. A garment hanger according to claim 11 in which the rib means (94) is tapered with its greatest thickness adjacent the juncture of the finger with the hanger body.

13. A garment hanger as claimed in claim 11 or claim 12 in which each of said arms (71,81,82) is "T-shaped" in cross section being reinforced by a central outwardly extending flange.

14. A garment hanger as described in any of claims 10 to 13 in which the entrance restricting means for said upper and lower pockets is a gripper member (86) having an inclined surface facing toward the entrance of the hanger forming a ramp to facilitate insertion of a garment into the channel.

15. A garment hanger as claimed in any of claims 10 to 14 in which the fingers in said upper and lower pockets have a plurality of rounded gripping means (87,87a) integral therewith projecting into the channel formed by the finger, said gripping means being spaced apart lengthwise of the fingers.

16. A garment hanger as claimed in claim 15 in which a gripping means (88) of like construction is also provided on the arm forming each of said upper and lower pockets; said gripping means projecting into the channel between a pair of gripping means (87a) on the finger forming the channel.

17. A garment hanger substantially as described herein with reference to the accompanying drawings.

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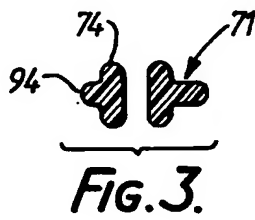
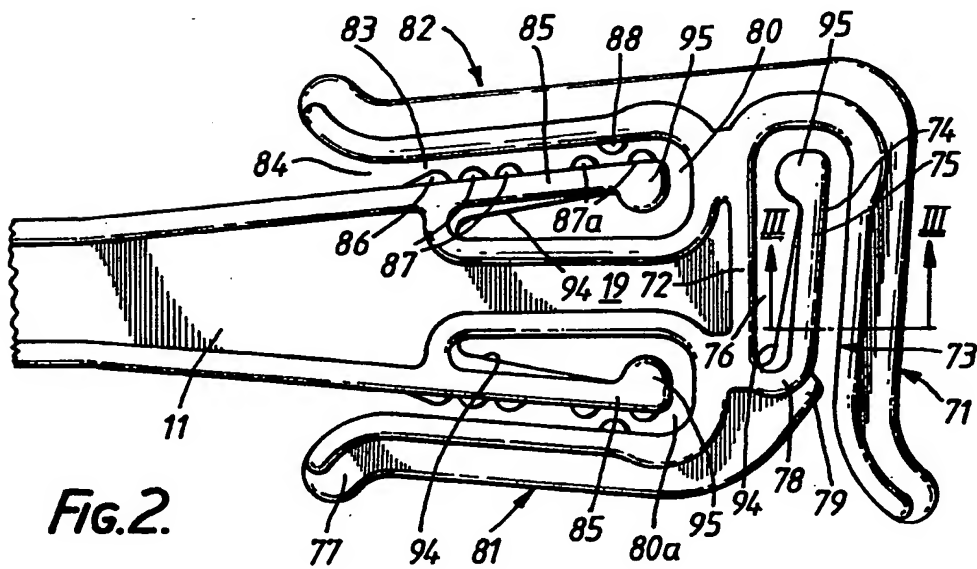
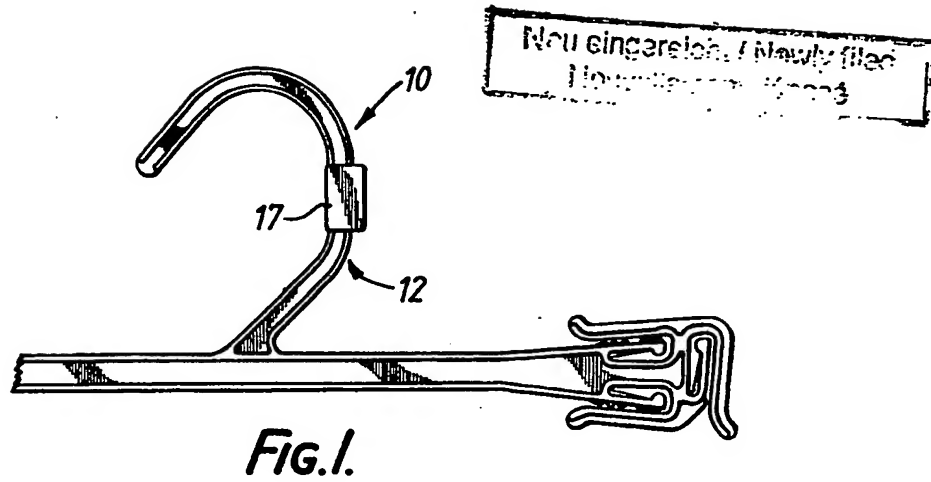
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CL.5)
Y	GB-A-2161200 (MARKS AND SPENCER) * the whole document *	1, 6, 17	A47G25/50
A		2, 3, 7, 11-13, 15, 16	
Y,D	US-A-4623079 (TENDRUP ET AL.) * figure 6 *	1, 6, 17	
A		5, 10	
A	DE-U-8629686 (FILDAN) * page 5, line 23 - line 30; figure 1 *	1, 5, 6, 9, 10, 14, 15, 17	
A,D	US-A-4629102 (TENDRUP ET AL.) * figures 5, 10 *	1, 5, 6, 10, 17	
			TECHNICAL FIELDS SEARCHED (Int. CL.5)
			A47G
The present search report has been drawn up for all claims.			
Place of search THE HAGUE		Date of completion of the search 08 AUGUST 1989	Examiner BEUGELING G. L. H.
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